CORRES CONTROL
INCOMING LTR NO

02391 RF 94

DUE
DATE

ACTION DIST.	LTR	ENC
BERMAN H S		
CARNIVAL G J		
COPP R D		
CORDOVA R C		
DAVIS J G		
FERRERA D W		
FRANZ W A		
HANNI B J		
HEALY T J		
HEDAHL T G		
HILBIG J G		
HUTCHINS N M		
KELL R E		
KIRBY W A		
KUESTER A W		
MAHAFFEY J W		
MANN H P		
MARX G E		
McKENNA F G		
MORGAN R V		
PIZZUTO V M		
POTTER G L		
SANDLIN N B		
SATTERWHITE D G		
SCHUBERT A L		
SETLOCK G H		
STIGER S G	X	
SULLIVAN M T		
SWANSON E R		
WILKINSON R B		
WILSON J M		
Hopkins U	X	
Busby W	X	

CORRES CONTROL	x	x
ADMN RECORD/080	X	R
PATS/T130G		

Reviewed for Addressee
Corres Control RFP

6/15/94 Cml
DATE BY

Ref Ltr #

DOE ORDER # 5400.3

RF 46522 (Rev 01/94)

Department of Energy

ROCKY FLATS OFFICE
P O BOX 928
GOLDEN COLORADO 80402-0928

JUN 14 1994

0000 33008

Mr Gary Baughman
Colorado Department of Health
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Dear Mr Baughman

The Department of Energy, Rocky Flats Field Office, has reviewed the Colorado Department of Health document entitled, "Interim Final Policy and Guidance On Risk Assessments For Corrective Action at the Resource Conservation Recovery Act Facilities " Specific comments are due June 30, 1994, and are provided in the enclosure

Should you have any comments or questions regarding this letter or the enclosure, please contact me at 966-2273 or Al Howard, of my staff, at 966-5915

Sincerely,

for Shirley J Olinger,
Acting Assistant Manager for
Environment, Safety and Health

Enclosure

cc w/Encl
A Howard, EGD, RFFO
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U S Department of Energy - Rocky Flats Field Office
Specific Comments on

Colorado Department of Health Document Entitled,
"Interim Final Policy and Guidance On Risk Assessments For Corrective Action At RCRA Facilities"

June, 1994

- Page 2, Glossary, Soil

  - The definition as described in relation to subsurface soils and sediments inadequately precludes consideration of ecological factors Conditions of soils and sediments may be modified by deposition of previously dredged and deposited materials Categorically stating that , "Contaminated subsurface soils deeper than 12 feet need not be considered in the risk assessment," is inappropriate in a universal context While this may be appropriate in many cases, it cannot be stated categorically for all sites This statement should be removed from the definition

- Page 3, Corrective Action Risk Assessments, 1 0 Statement of Policy and Purpose,

  - ¶4 The subject paragraph fails to adequately consider important factors for ecological risks The subject paragraph states in part, "[Solid Waste Management Units] SWMUs or release sites that meet the levels prescribed in criteria a) and b) are considered "clean" and further action would not be necessary " Meeting criteria (a) and (b) under Screen 1 may still be causing substantial ecological injury Combinations or mixtures of various hazardous materials/wastes are proven to cause substantial injury to natural resources in concentrations below established numeric criteria, particularly in aquatic systems The statement should be modified to read, "SWMUs or release sites meeting the levels prescribed in criteria a) and b) *may* (emphasis added) be considered "clean" and further action *may* (emphasis added) be unnecessary if site-specific conditions indicate the criteria are protective on a case by case basis "

- Page 4, Screen 2

  - Per RCRA, OBJECTIVES AND NATIONAL POLICY, §1003(a) Objectives, per 42 USC 6902, categorically states, "The objectives of this Act are to promote the protection of health *and the environment* (emphasis added) " This section, and the interim policy as a whole, fails to adequately consider important factors for ecological risks The premise of items c) and d) in paragraph one exclusively address human health with carcinogenesis as the end point Ecological systems may suffer from substantially more adverse effects due to the release of hazardous materials/wastes (e g , reproductive success) by high concentrations of wastes in areas too small to affect human carcinogenic risk Contamination scenarios should never be evaluated solely against the human carcinogenesis end point

  - RCRA, APPLICATION OF ACT AND INTEGRATION WITH OTHER ACTS, 42 USC 6905, §1006(b)(1) states, "The Administrator shall integrate all provisions of this Act for purposes of administration and enforcement and shall avoid duplication to the maximum extent practicable, with the appropriate provisions of such other Acts of Congress as grant regulatory authority to the Administrator " The intent here is to integrate RCRA compliance with CERCLA

and other Acts, so as to make the requirements compatible, and in fact the State has been delegated dual responsibility under both RCRA and CERCLA The current policy fails to recognize or account for this guidance The policy is *required* therefore, to resolve any conflict that may exist between the laws prior to issuance or finalization of the policy DOE requests that this be done before the policy becomes final or enforceable

- The statement that Screen 2 only applies if the medium is not, "a characteristic waste," should be more fully explained. It is unclear how and why this affects the risk assessment method, and this explanation should be supplied Further the term "not a characteristic waste, "should be explained in the glossary

- Pages 4-5, Section 1 1

  - This section discusses risk assessment in deference to risk management and in the last paragraph on page 4 states, "The risk assessment methodology presented herein is generally consistent with the methodology presented in Risk Assessment Guidance for Superfund or RAGS (EPA, 1989a) " Discussed below are major policy decisions that depart from RAGS without technical justification DOE therefore believes that the methodology is not consistent with RAGS Other sections of Volume One are incompletely reproduced in the text, and the text does not distinguish which volume of the manual is referenced These technical justifications must be supplied before it can be claimed that this policy relates to Superfund guidance in any meaningful way

    RAGS Vol I concerns human health evaluations Volume II of RAGS contains the environmental guidance for Superfund, however, U S Environmental Protection Agency guidance has been updated by a 1992 document entitled, "Framework for Ecological Risk Assessment " In general, in the majority of cases involving environmental contaminants, when ecological risks have been adequately assessed and managed, most human health risks are also adequately controlled This is because usually some key species of organism in the environment other than humans is more sensitive to the hazardous material/waste in question The risk assessment methodology asserted here fails to recognize this concept and in general, fails to address ecological receptors as required by the regulations These deficiencies must be corrected before this policy can be declared complete

- Page 5, 2 0 Risk Assessment Methodology

  - This section states in part, " the facility may assess where contamination exists that exceeds the detection limits or background levels ," " the facility should consider whether cleanup of contaminated areas to criteria a) and b) standards (as defined by CDH in Section 1 0) is feasible, desirable, or warranted." The section as written fails to consider that cleanup to CDH criteria and standards may not be protective of ecological considerations Cleanup to these criteria mandated by CDH may do irreparable injury to natural resources and result in major natural resource damage assessments How will you account for this in your policy?

  - Paragraph 2 states, "The risk assessment is subdivided into three main tasks

    1) Exposure Assessment
    2) Toxicity Assessment
    3) Risk Characterization"

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This conceptual approach is taken from RAGS, Volume 1, but neglects the step of Fate and Transport Assessment This approach also ignores the differences between the human health risk paradigm and the ecological risk paradigm developed by EPA Again, the basic approach by CDH is flawed and is inconsistent with the intent of RCRA CDH does not have the option to selectively implement RCRA provisions, each part must be enforced with the same rigor And since CDH has dual responsibilities under CERCLA and RCRA, it is important to note this approach is inconsistent with CERCLA as well

- Pages 5-6, 3 0 Exposure Assessment

  - A residential exposure scenario may or may not be appropriate for human health concerns at RFS considering current economic development and past releases Industrial worker exposures would be the worst case scenario, children, other potentially affected residents, and sensitive sub-populations fall off the list under this scenario

  - The Exposure Assessment section also fails to evaluate indirect exposures to ecological receptors and fails to consider ecological pathways, food webs and prey bases Identified items 1-5 for determination may be fine for working with the human health paradigm, however they fail to adequately consider risks to ecological receptors

  - Under Section 3 1 1 , the assumptions used to support the unrestricted use scenario use circular reasoning and are inaccurate They contradict the stated position of CDH that risk-based decision making is the desired method for making remediation decisions, particularly at RFS It is certain that portions of RFS will remain under DOE control for the foreseeable future For these restricted areas, a residential scenario is inappropriate and only applicable risk assumptions should be used to evaluate these areas Long term ($\geq$ 100 years) site use at RFS is not difficult to predict and organic contaminants profiles after that time period will be greatly different, i e lower, than they are now Expensive scenario development coupled with unrealistic cleanup criteria is an onerous requirement that is not health protective and unnecessarily diverts scarce fiscal resources from high priority areas More flexibility should be incorporated into the guidance so scientifically justifiable exposure pathways can be chosen on a site-specific basis For multiple scenarios, weight should be given to the likely future land/facility use If these requirements are supported by a sound scientific basis, then that basis should be stated and open to public review Without such explanation, using these standards may jeopardize timely and efficient cleanup of the Rocky Flats Site

  - Under Section 3 1 2 , Direct Exposure (e) inhalation of indoor air VOCs, from the definition of subsurface soil in the glossary, this pathway appears to exclude subsurface soil at a depth greater than 12 feet Also it appears the inhalation of indoor VOCs from groundwater may be excluded if it contains contaminant concentrations greater than water quality standards If these exclusions are intended, they should be explicitly stated in this section

  - Under Section 3 2 1 , the interim guidance states that for water pathways where contaminant concentrations exceed any standard, the most restrictive standard is substituted for a risk-based action level In the case where the water standards are not exceeded or the case where no standard exists is DOE to follow the guidance contained in the CDH letter of March 3, 1993, entitled "Pond Water Management IM/IRA Information," or is some other guidance applicable?

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- Under Section 3 1 3 , Residential land use scenarios require consideration of sensitive sub-populations, however, as noted above, this scenario will not be appropriate in all cases at RFS Further, the requirement that children be treated as a sensitive sub-population with separate calculations for all five exposure pathways appears to be arbitrary and without current practice within USEPA risk assessment guidance The soil ingestion pathway for children is useful because of high soil ingestion rate in relation to lower body weights However, the intake to body rate ration for the other pathways is nearly the same between children and adults It is requested that CDH provide technical justification for to support the necessity for, and reasonableness of, each of these positions

- Under Section 3 1 4 , Lack of dilution or attenuation contributes an unacceptable conservatism to the analysis CDH is advised to allow their approved models to perform their dispersion function, and not legislate deliberate analysis error for the sake of "conservatism "

• Pages 8-9, Section 3 2 Exposure Quantification

- The requirement that the maximum site contaminant concentration be used as the exposure concentration is inconsistent with current USEPA guidance and recent agreement reached among EPA, DOE, and CDH For RCRA sites the 95% upper confidence level for the arithmetic mean approach stated in the USEPA document entitled, "Supplemental Guidance to RAGS Calculating the Concentration Term," should be used

• Pages 9-11, 4 0 Toxicity Assessment, and 5 0 Risk Characterization

Sections 4 0 and 5 0 fail to require toxicity and risk characterization methodologies that adequately protect the environment. Consequently, these sections are inconsistent with RCRA §1003 (a) Objectives, and RCRA §1006 (b) (1) Integration With Other Acts

- Under Section 5 0, the human health risk guidance of $1x10^{-6}$ risk presented in this section are not scientifically based and inconsistent with RAGS This guidance conflicts with the USEPA document, "Risk Assessment for Superfund, Vol I," (RAGS I) which defines a human health carcinogenic target risk range of $1x10^{-4}$ to $1x10^{-6}$ for decision-making purposes It is also in conflict with a recently issued report from the National Academy of Sciences (NAS) that evaluated risk reporting and recommended a risk range over a single value due to the large uncertainties and conservatism built into current risk analysis guidance

The CDH position also fails to acknowledge that these target coefficients of human health risk are only gross indicators of relative hazard, with excessive conservatism already built in to the analytical technique Proposing to use the guidance in this manner undercuts the intended basis for the method within the risk-based decision process with no apparent value added CDH is requested to provide a thorough technical justification for any deviation from established guidance that already provides extensive technical background

Also, when individual hazard quotients (HQs) for specific chemicals and specific pathways are summed together, the resulting number is termed a hazard index (HI) as opposed to a hazard quotient

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- Appendices

  - Appendix A, Table A-2 The exposed surface area (SA) values calculated for adult and child receptor bodies appears inconsistent with the 1992 USEPA guidance document entitled, "Dermal Exposure Assessment Principles and Applications," pages 8-10 Also, the default absorption factor of 0 5 given is appropriate only for organic compounds

  - Table A-3 For the chemical concentration in soil term (C), an indication of the soil depth to be used should be added In the same table, the option of allowing a site-specific particulate emission factor should be allowed with specific CDH review and concurrence

  - Table A-4 It appears that the factor that accounts for the amount of consumed fruits and vegetables that are homegrown is inadvertently used twice in the equation The factor is incorporated in the Ingestion Rate (IR) and the FI term

  - Table A-7 Same comment regarding the default absorption factor as for Table A-2 above

  - Table A-8 Same comment regarding the particulate emission factor as for Table A-3 above

  - Table A-9 The same construction/maintenance worker cannot be simultaneously exposed to outdoor (presumed) inhalation of soil particulates for eight hours a day (Table 8) and indoor inhalation for air VOCs (Table 9) from subsurface soils The time of exposure for a construction/maintenance worker should be divided between indoor and outdoor exposure

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